

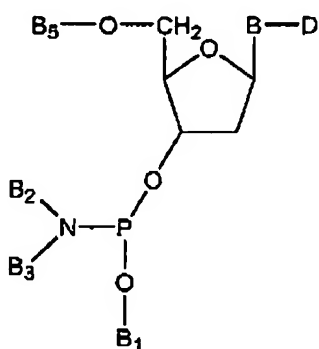
**Amendments to the Claims:**

This listing of claims will replace all prior listings of claims in the application:

**Listing of Claims:**

1-41. (previously cancelled)

42. (Previously presented) A phosphoramidite compound having the formula:



wherein:

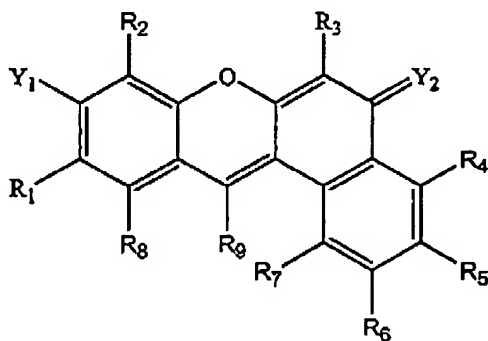
B<sub>1</sub> is a phosphite ester protecting group;

B<sub>2</sub> and B<sub>3</sub>, taken separately, are selected from lower alkyl, lower alkene, aryl and cycloalkyl, containing up to 10 carbon atoms;

B<sub>5</sub> is selected from triphenylmethyl radical and electron-donating-substituted triphenylmethyl radical;

B is a nucleobase;

D comprises a dye of the formula:

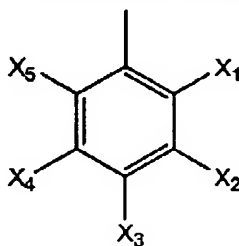


wherein:

$Y_1$  and  $Y_2$  taken separately are selected from the group consisting of hydroxyl, oxygen, imminium, and amine;

$R_1$ - $R_8$  taken separately are selected from the group consisting of hydrogen, fluorine, chlorine, lower alkyl, lower alkene, lower alkyne, sulfonate, sulfone, amino, imminium, amido, nitrile, lower alkoxy, linking group, and combinations thereof; and

$R_9$  is selected from the group consisting of acetylene, lower alkyl, lower alkene, cyano, phenyl, substituted phenyl, heterocyclic aromatic, and substituted phenyl having the structure:



wherein:

$X_1$ - $X_5$  taken separately are hydrogen, chlorine, fluorine, lower alkyl, carboxylic acid, sulfonic acid,  $-\text{CH}_2\text{OH}$ , or linking group;

wherein when B is purine or 7-deazapurine, the sugar moiety is attached at the  $\text{N}^9$ -position of the purine or 7-deazapurine, and when B is pyrimidine, the sugar moiety is attached at the  $\text{N}^1$ -position of the pyrimidine;

wherein B and D are linked through a linkage attached to D at one of positions  $R_1$ - $R_9$ ; and

wherein if B is a purine, the linkage is attached to the 8-position of the purine, if B is 7-deazapurine, the linkage is attached to the 7-position of the 7-deazapurine, and if B is pyrimidine, the linkage is attached to the 5-position of the pyrimidine.

43. (Presently amended) The phosphoramidite compound of claim 42 wherein  $B_5$  is an electron-donating-substituted triphenylmethyl radical.

44. (Presently amended) The phosphoramidite compound of claim 43 wherein the electron-donating-substituted triphenylmethyl radical comprises at least one electron-donating substituent selected from amino, lower alkyl and lower alkoxy.

45. (Presently amended) The phosphoramidite compound of claim 44 wherein the electron-donating substituent is lower alkoxy.

46. (Presently amended) The phosphoramidite compound of claim 43 wherein the electron-donating-substituted triphenylmethyl radical is selected from 4,4'-dimethoxytrityl, monomethoxytrityl and tri(p-methoxyphenyl)methyl.

47. (New) The phosphoramidite compound of claim 42, wherein

one of Y<sub>1</sub> and Y<sub>2</sub> is oxygen and the other is hydroxyl or protected phenolic hydroxyl,

R<sub>9</sub> is substituted phenyl wherein X<sub>1</sub> is carboxyl, X<sub>2</sub> and X<sub>5</sub> are chloro, and one of X<sub>3</sub> and X<sub>4</sub> is a linkage and the other is hydrogen, and either:

(a) R<sub>1</sub> and R<sub>3</sub> are fluoro, and R<sub>2</sub> and R<sub>4</sub> - R<sub>8</sub> are hydrogen,

(b) R<sub>1</sub> is chloro, R<sub>3</sub> is fluoro, and R<sub>2</sub> and R<sub>4</sub> - R<sub>8</sub> are hydrogen,

(c) R<sub>1</sub> is methoxy, R<sub>2</sub> is chloro, R<sub>3</sub> is fluoro, and R<sub>4</sub> - R<sub>8</sub> are hydrogen,

(d) R<sub>3</sub> is fluoro, and R<sub>1</sub>, R<sub>2</sub> and R<sub>4</sub> - R<sub>8</sub> are hydrogen,

(e) R<sub>1</sub> - R<sub>8</sub> are hydrogen,

(f) R<sub>1</sub> is chloro, and R<sub>2</sub> - R<sub>8</sub> are hydrogen,

(g) R<sub>1</sub> is methoxy, R<sub>2</sub> is chloro, and R<sub>3</sub> - R<sub>8</sub> are hydrogen, or

(h) R<sub>2</sub> and R<sub>3</sub> are chloro, and R<sub>1</sub> and R<sub>4</sub> - R<sub>8</sub> are hydrogen.

48. (New) The phosphoramidite compound of claim 47 wherein B<sub>5</sub> is an electron-donating-substituted triphenylmethyl radical.

49. (New) The phosphoramidite compound of claim 48 wherein the electron-donating-substituted triphenylmethyl radical comprises at least one electron-donating substituent selected from amino, lower alkyl and lower alkoxy.

50. (New) The phosphoramidite compound of claim 49 wherein the electron-donating substituent is lower alkoxy.

51. (New) The phosphoramidite compound of claim 48 wherein the electron-donating-substituted triphenylmethyl radical is selected from 4,4'-dimethoxytrityl, monomethoxytrityl and tri(p-methoxyphenyl)methyl.
52. (New) The phosphoramidite compound of claim 47, wherein  
R<sub>1</sub> and R<sub>3</sub> are fluoro, and R<sub>2</sub> and R<sub>4</sub> - R<sub>8</sub> are hydrogen.
53. (New) The phosphoramidite compound of claim 47, wherein  
R<sub>1</sub> is chloro, R<sub>3</sub> is fluoro, and R<sub>2</sub> and R<sub>4</sub> - R<sub>8</sub> are hydrogen.
54. (New) The phosphoramidite compound of claim 47, wherein  
R<sub>1</sub> is methoxy, R<sub>2</sub> is chloro, R<sub>3</sub> is fluoro, and R<sub>4</sub> - R<sub>8</sub> are hydrogen.
55. (New) The phosphoramidite compound of claim 47, wherein  
R<sub>3</sub> is fluoro, and R<sub>1</sub>, R<sub>2</sub> and R<sub>4</sub> - R<sub>8</sub> are hydrogen.
56. (New) The phosphoramidite compound of claim 47, wherein  
R<sub>1</sub> - R<sub>8</sub> are hydrogen.
57. (New) The phosphoramidite compound of claim 47, wherein  
R<sub>1</sub> is chloro, and R<sub>2</sub> - R<sub>8</sub> are hydrogen.
58. (New) The phosphoramidite compound of claim 47, wherein  
R<sub>1</sub> is methoxy, R<sub>2</sub> is chloro, and R<sub>3</sub> - R<sub>8</sub> are hydrogen.
59. (New) The phosphoramidite compound of claim 47, wherein  
R<sub>2</sub> and R<sub>3</sub> are chloro, and R<sub>1</sub> and R<sub>4</sub> - R<sub>8</sub> are hydrogen.